
TITLE 329 SOLID WASTE MANAGEMENT BOARD

Proposed Rule
LSA Document #07-552

DIGEST

Adds [329 IAC 3.1-6-8](#) to conditionally exclude from regulation under [329 IAC 3.1](#) (delist) wastewater treatment sludge from the chemical conversion coating of aluminum, hazardous waste code F019, that is generated by Alcoa Corporation Warrick Operation near Newburgh, Indiana. Effective 30 days after filing with the Publisher.

HISTORY

Findings and Determination of the Commissioner Pursuant to [IC 13-14-9-7](#) and Second Notice of Comment Period: September 12, 2007, Indiana Register (DIN: [20070912-IR-329070552FDA](#)).

Notice of First Hearing: September 12, 2007, Indiana Register (DIN: [20070912-IR-329070552PHA](#)).

Date of First Hearing: November 20, 2007.

PUBLIC COMMENTS UNDER [IC 13-14-9-4.5](#)

[IC 13-14-9-4.5](#) states that a board may not adopt a proposed rule under [IC 13-14-9](#) that is substantively different from the draft rule published under [IC 13-14-9-7](#), until the board has conducted a third comment period that is at least 21 days long. Because this proposed rule is not substantively different from the draft rule published on September 12, 2007 (DIN: [20070912-IR-329070552FDA](#)), the Indiana Department of Environmental Management (IDEM) is not requesting additional comment on this rule.

SUMMARY/RESPONSE TO COMMENTS FROM THE SECOND COMMENT PERIOD

IDEM requested public comment from September 12, 2007, through October 12, 2007, on IDEM's draft rule language. IDEM received comments from the following party:

Ronda L. Hooper, Staff Environmental Engineer, Solid and Hazardous Waste Management, Alcoa Warrick Operations (AWO)

Following is a summary of the comments received and IDEM's responses thereto:

Comment: In proposed [329 IAC 3.1-6-8](#)(7)(A), the commenter stated that this clause should be amended to read

"(A) municipal solid waste landfill permitted under [329 IAC 10](#) where industrial waste of this type is not otherwise restricted."

There are other landfills referenced in [329 IAC 10](#) in addition to municipal solid waste landfills that would meet the design requirements under which the delisting was modeled. These landfills should be available for Alcoa's potential use in disposing of the waste under the terms of the delisting. (AWO)

Response: The analysis that forms the basis for this delisting assumed that the delisted waste will be disposed of in a fully lined municipal solid waste landfill. An unlined landfill such as a restricted waste site type III or a construction/demolition site would be clearly unsuitable for a delisted hazardous waste. Restricted waste sites may or may not be lined and are designed and permitted to accept specific wastes. Such a landfill would have to be re-permitted to accept this waste stream, assuming the landfill owner would agree to accept the waste. Alcoa has not indicated that such an arrangement would be considered for this waste stream. IDEM is not aware of any nonmunicipal solid waste landfill or restricted waste site that is currently permitted to accept this waste.

Comment: The commenter requested that the maximum quantity of waste delisted under this rule be expressed in tons rather than cubic yards. (AWO)

Response: IDEM agrees and will amend [329 IAC 3.1-6-8](#)(9) to allow delisting of up to 5,250 short tons (4,200 cubic yards x 1.25 short tons per cubic yard) per calendar year under this exclusion.

Comment: In [329 IAC 3.1-6-8](#)(3)(C), the commenter requests that the clause be amended to read as follows:

"(C) Manage the waste as hazardous waste until Alcoa receives and submits in writing to IDEM the analysis from three (3) consecutive truckload shipments of the waste that are within the delisting level for that constituent. Upon receipt and submittal to IDEM of this analysis, Alcoa can resume managing the waste under this exclusion."

Alcoa would like the ability to self-implement a resumption of non-hazardous landfilling as soon as the data supports the resumption. Alcoa is concerned that resuming non-hazardous waste landfilling may be unnecessarily delayed due to the potential that the department may not be able to provide a written response or approval in a timely manner. (AWO)

Response: Delays associated with resumption of non-hazardous disposal of delisted wastes are typically due to delayed receipt of analytical data and negotiations over action required to resume non-hazardous disposal. If Alcoa can provide timely notice and analytical information to support a decision, IDEM will provide any required

response, or approval if warranted by the facts, in a timely manner. Alcoa can minimize or eliminate any such delay by carefully managing the waste stream within the constraints of this rule. IDEM cannot abandon effective oversight of these exclusions by allowing the rule to be self-implementing. Such a provision would fall below the standards for hazardous waste management programs upon which Indiana's program authorization is based.

Comment: The commenter requests that proposed [329 IAC 3.1-6-8\(2\)\(C\)](#) and (D) be revised to read as follows:

"(C) If the relative percent difference (RPD) between the two (2) samples for any individual constituent is forty percent (40%) or less for the first four (4) quarters, then Alcoa may obtain and analyze one (1) representative sample for that particular constituent of the delisted waste each following quarter. This applies to all Table 1 parameters. In addition, for hexavalent chromium measured in mg/kg, if the RPD between the first two (2) samples is more than forty percent (40%) in any of the first four (4) quarters and the total hexavalent chromium is at or below twenty five percent (25%) of the delisting level, then Alcoa may obtain and analyze one (1) representative sample for hexavalent chromium each following quarter. The relative percent difference is calculated for each constituent and equals one hundred (100) times the absolute value of the difference between the results divided by the average of the results, as follows:

$$RPD = 100 [(|x_1 - x_2|) / \{(x_1 + x_2) / 2\}]$$

where x1 equals sample results and x2 equals duplicate results.

(D) If any sample result shows any constituent listed in Table 1 at or above fifty percent (50%) of the delisting level for that constituent, then Alcoa must analyze two (2) duplicate samples each quarter for that constituent until authorized by the department to analyze one (1) sample each quarter."

Alcoa proposes that compliance with the 40% RPD levels and 50% of the delisting levels be done on a constituent by constituent basis as it is the individual constituents that trigger these levels and are therefore the object of concern. As the language currently reads, inappropriate additional analysis of all constituents would be required, thus including those constituents for which concern has not been noted.

In addition, Alcoa proposes that the 40% RPD level be modified for the hexavalent chromium total analysis to include an option for dual triggers of exceeding both 40% RPD and 25% of the delisting level. Alcoa has noted that variations in the sample matrix undergoing colorimetric analysis can occasionally impact the RPD outside of the 40% levels. However, Alcoa notes that the highest level of hexavalent chromium found in the delisting petition analytical was 240 mg/kg (6.3% of the delisting limit) against a delisting limit of 3,800 mg/kg. Given the wide gap between actual hexavalent chromium levels found in the waste and the delisting limit, Alcoa proposes that an RPD of over 40% for this constituent would not represent an issue of concern and if the gap between actual [levels of hexavalent chromium in the] waste and the delisting level narrows, the 25% of the delisting limit trigger will maintain protectiveness. (AWO)

Response: While IDEM agrees that the RPD calculation for hexavalent chromium can be modified, IDEM does not agree that a threshold of 25% of the delisting level is appropriate. IDEM will modify the draft rule to allow reduced testing for hexavalent chromium levels equal to or below 10.0 mg/kg, and for levels above 10.0 mg/kg with an RPD of 40% or less.

Comment: The commenter recommends that proposed [329 IAC 3.1-6-8\(2\)\(E\)](#) be redesignated as (2)(F) and a new [329 IAC 3.1-6-8\(2\)\(E\)](#) be inserted to read as follows:

"(E) After eight (8) consecutive quarters at being below fifty percent (50%) for all delisting constituents, Alcoa may move to twice annual sampling of the delisted constituents. If after eight (8) quarters and six (6) semi-annual sampling events of being below fifty percent (50%) for all delisting constituents, then Alcoa may move to annual sampling of the delisted constituents."

In addition to the potential to petition IDEM for changes in the monitoring frequency found in the current language in clause (2)(E), Alcoa would like a more formally prescribed path to reaching an end point of reduced sampling. (AWO)

Response: Annual sampling is not adequate to detect significant variation in a continuously generated waste. Quarterly sampling will sample approximately 4% of the waste stream. Annual sampling would reduce this minimal sampling to less than 1%. This change would allow a serious deficiency in management of this waste stream resulting in significantly elevated levels of hazardous constituents to go undetected for up to one year. Once detected, the cost to retest the waste, or potentially to remove and properly re-dispose of the waste as hazardous waste, would vastly outweigh any minimal cost savings resulting from reduced sampling. Current EPA delisting rules for F019 waste require quarterly verification testing, and IDEM does not agree that a delisting rule that is less stringent than the current national practice for delisting is either appropriate or in the state's best interest.

SUMMARY/RESPONSE TO COMMENTS FROM THE FIRST PUBLIC HEARING

On November 20, 2007, the Solid Waste Management Board conducted the first public hearing/board meeting concerning the development of new rules at [329 IAC 3.1-6-8](#). No comments were received at the first public hearing.

SECTION 1. [329 IAC 3.1-6-8](#) IS ADDED TO READ AS FOLLOWS:

[329 IAC 3.1-6-8](#) Waste excluded from regulation; Alcoa Corporation, Warrick Operations, Newburgh, Indiana

Authority: [IC 13-14-8](#); [IC 13-14-9-7](#); [IC 13-22-2](#)

Affected: [IC 13-22](#)

Sec. 8. Wastewater treatment sludge, hazardous waste code F019, that is generated by Alcoa Corporation (Alcoa) at the Warrick Operations, Newburgh, Indiana is excluded from regulation under this article so long as management of the waste complies with all of the following conditions:

(1) No concentration of a constituent listed in Table 1 may exceed the delisting level for that constituent listed in Table 1. The delisting levels listed in Table 1 are the maximum concentration of that constituent measured in the extract of the wastewater treatment sludge using the extraction methods described in subdivision (2).

Table 1. Maximum Delisting Levels for Inorganic and Organic Constituents
Chemical Abstract Service Registry

Constituent	Number	Delisting Level
Antimony	7440-36-0	0.390 mg/L ¹
Arsenic	7440-38-2	0.360 mg/L ¹
Barium	7440-39-3	100 mg/L ^{1, 3}
Beryllium	7440-41-7	0.790 mg/L ¹
Cadmium	7440-43-9	0.280 mg/L ¹
Chromium (trivalent)	7440-47-3	5.0 mg/L ^{1, 3}
Chromium (hexavalent)	18540-29-9	3,800 mg/kg ²
Copper	7440-50-8	17,000 mg/L ¹
Cobalt	7440-48-4	42.5 mg/L ¹
Lead	7439-92-1	5.0 mg/L ^{1, 3}
Mercury	7439-97-6	0.150 mg/L ¹
Nickel	7440-02-0	53.3 mg/L ¹
Selenium	7782-49-2	1 mg/L ^{1, 3}
Silver	7440-22-4	5 mg/L ^{1, 3}
Thallium	7440-28-0	0.16 mg/L ¹
Tin	7440-31-5	430 mg/L ¹
Vanadium	7440-62-2	40 mg/L ¹
Zinc	7440-66-6	530 mg/L ¹

¹ mg/L means milligrams per liter.

² mg/kg means milligrams per kilogram.

³ The delisting level for this constituent was higher than the toxicity characteristic regulatory level in 40 CFR 261.24; therefore, the toxicity characteristic regulatory level applies.

(2) Except as provided in clauses (C) through (F), Alcoa shall obtain two (2) duplicate representative samples of the delisted waste each quarter and analyze them for the constituents listed in Table 1 as follows:

(A) Constituents must be extracted using the following:

(i) Method 1311, Toxicity Characteristic Leaching Procedure (TCLP)*.

(ii) Method 1330A, Oily Waste Extraction Procedure*, if oil and grease levels exceed ten thousand

(10,000) milligrams per kilogram.

(iii) Method 3060A, Alkaline Digestion for Hexavalent Chromium*.

(B) Constituents must be analyzed using the following:

(i) Method 6010B, Inductively Coupled Plasma-Atomic Emission Spectrometry* or Method 6020, Inductively Coupled Plasma-Mass Spectrometry*.

(ii) Method 7470A, Mercury in Liquid Waste (Manual Cold-Vapor Technique)*.

(iii) Method 7196A, Hexavalent Chromium (Colorimetric)*.

(C) For constituents other than hexavalent chromium, if the relative percent difference between the two (2) samples is forty percent (40%) or less for the first four (4) quarters, then Alcoa may obtain and analyze one (1) representative sample of the delisted waste each following quarter. The relative percent difference (RPD) is calculated for each constituent and equals one hundred (100) times the absolute value of the difference between the results divided by the average of the results, as follows:

$$RPD = 100 [(|x_1 - x_2|) / \{(x_1 + x_2) / 2\}]$$

where x1 equals sample results and x2 equals duplicate results.

(D) If the level of hexavalent chromium in the sample or duplicate sample is less or equal to ten and zero-tenths (10.0) milligrams per kilogram during the first four (4) quarters, then Alcoa may obtain and analyze one (1) representative sample of the delisted waste for hexavalent chromium each following quarter.

(E) If the level of hexavalent chromium in the sample or duplicate sample is greater than ten and zero-tenths (10.0) milligrams per kilogram, then Alcoa must calculate the relative percent difference as described in clause (C). If the relative percent difference between the two (2) samples is forty percent (40%) or less during the first four (4) quarters, then Alcoa may obtain and analyze one (1) representative sample of the delisted waste for hexavalent chromium each following quarter.

(F) If duplicate results for any constituent exceed forty percent (40%) relative percent difference, Alcoa must continue to analyze duplicate samples for that constituent for an additional two (2) quarters beyond the initial four (4) quarters. If the results still exceed forty percent (40%) relative percent difference after the additional two (2) quarters, Alcoa must continue to analyze duplicate samples for that constituent until authorized by the department to analyze one (1) sample each quarter.

(G) If any sample result shows any constituent listed in Table 1 at or above fifty percent (50%) of the delisting level for that constituent, then Alcoa must analyze two (2) duplicate samples each quarter until authorized by the department to analyze one (1) sample each quarter.

(H) Nothing in this section prohibits Alcoa from requesting at any time that the solid waste management board modify this section to allow less frequent verification testing.

(3) If waste testing or other information available to Alcoa shows that any constituent in Table 1 has exceeded the delisting level for that constituent, or Alcoa makes changes in the Warrick Operations that cause hazardous constituents listed in Table 1 to exceed the delisting level for that constituent, Alcoa must do all of the following:

(A) Notify the department in writing within ten (10) days of first possessing or being made aware of such data.

(B) Demonstrate that the waste continues to meet all delisting levels in Table 1.

(C) Manage the waste as hazardous waste until Alcoa receives written approval from the commissioner to resume managing the waste under this exclusion.

(4) Alcoa must submit an annual report that summarizes the data obtained through quarterly verification testing required by subdivision (2) to the department by February 1 of the following year. The report must include the results of each required analysis for the previous calendar year.

(5) Alcoa must compile, summarize, and maintain records of operating conditions and analytical data. The records must be:

(A) maintained for a minimum of five (5) years; and

(B) made available for inspection by the department during normal working hours.

(6) All data required by this section must be accompanied by a signed copy of the certification statement in 40 CFR 260.22(i)(12).

(7) The delisted waste must be disposed of in a:

(A) municipal solid waste landfill permitted under [329 IAC 10](#); or

(B) hazardous waste disposal facility permitted under this article.

(8) If, at any time after disposal of the delisted waste, Alcoa possesses or is otherwise made aware of any data, including, but not limited to, leachate data or ground water monitoring data, or any other data relevant to the delisted waste indicating that any constituent identified in Table 1 is at a level in the leachate that is higher than the specified delisting level, then Alcoa must report such data in writing to the department within ten (10) days of first possessing or being made aware of that data.

(9) No more than five thousand two hundred fifty (5,250) short tons of delisted waste may be disposed of in any calendar year under this exclusion.

***Test methods referenced in this rule are found in U.S. Environmental Protection Agency Publication SW-846, "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods", Third Edition, available from the Government Printing Office, Superintendent of Documents, P.O. Box 371954, Pittsburgh, Pennsylvania 15250-7954, (202) 783-3238.**

(Solid Waste Management Board; [329 IAC 3.1-6-8](#))

[Notice of Public Hearing](#)

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